

CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE WHEELER LAKE WATERSHED

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5.1. BACKGROUND. The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Wheeler Lake Watershed. The information presented is provided by the agencies and organizations described.

5.2. FEDERAL PARTNERSHIPS.

5.2.A. Natural Resources Conservation Service. The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance & Results Measurement System (PRMS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRMS may be viewed at <http://prms.nrcs.usda.gov/prms>. From the opening menu, select “Reports,” then select the Conservation Treatment of interest on the page that comes up. Select the desired location and time period from the drop down menus and choose “Refresh.” Choose “by HUC” in the “Location” option and choose “Refresh” again.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	TOTAL
Comprehensive Nutrient Management Plans (Number)	2
Conservation Buffers (Acres)	26
Erosion Reduction (Tons/Year)	3,341
Inventory and Evaluations (Number)	0
Irrigation Management (Acres)	0
Nutrient Management (Acres)	2,272
Pest Management (Acres)	1,085
Prescribed Grazing (Acres)	180
Residue Management (Acres)	2,130
Tree and Shrub Practices (Acres)	0
Waste Management (Number)	0
Wetlands Created, Restored, or Enhanced (Acres)	12
Wildlife Habitat (Acres)	200

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the Tennessee Portion of Wheeler Lake Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period. More information is provided in Wheeler-Appendix V.

5.2.B. United States Geological Survey Water Resources Programs – Tennessee District. The U.S. Geological Survey (USGS) provides relevant and objective scientific studies and information for public use to evaluate the quantity, quality, and use of the Nation’s water resources. In addition to providing National assessments, the USGS also conducts hydrologic studies in cooperation with numerous Federal, State, and local agencies to address issues of National, regional, and local concern. Please visit <http://water.usgs.gov/> for an overview of the USGS, Water Resources Discipline.

The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 89 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other locations. Ground-water levels are monitored Statewide, and the physical, chemical, and biologic characteristics of surface and ground waters are analyzed. USGS activities also include the annual compilation of water-use records and collection of data for National baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program (<http://bqs.usgs.gov/acidrain/>), National Stream Quality Accounting Network (<http://water.usgs.gov/nasqan/>), and the National Water-Quality Assessment Program (<http://water.usgs.gov/nawqa/>).

USGS Water Resources Information on the Internet. Real-time and historical streamflow, water levels, and water-quality data at sites operated by the Tennessee District can be accessed at <http://waterdata.usgs.gov/tn/nwis/nwis>. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus. Contact Donna Flohr at (615) 837-4730 or dfflohr@usgs.gov for specific information about streamflow data.

Recent publications by the USGS staff in Tennessee can be accessed by visiting <http://tn.water.usgs.gov/pubpg.html>. This web page provides searchable bibliographic information to locate reports and other products about specific areas.

5.2.C. U.S. Fish and Wildlife Service. The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife Service (Service) works with State and Federal agencies and Tribal governments, helps corporate and private landowners conserve habitat, and cooperates with other nations to halt illegal wildlife trade. The Service also administers a Federal Aid program that distributes funds annually to States for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from Federal excise taxes on fishing, hunting, and boating equipment.

Endangered Species Program. Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program. For a complete listing of endangered and threatened species in the Wheeler Lake Watershed, please visit the Service's website at <http://www.cookeville.fws.gov>.

Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species' survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates but other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

Partners for Fish and Wildlife Program. The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types that benefit native fishes and wildlife. The program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

How To Participate:

- Interested landowners contact a “Partners for Fish and Wildlife” Biologist to discuss the proposed project and establish a site visit.
- A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.
- Proposed cost estimates are discussed by the Service and landowner.
- A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service’s Ecosystem team for ranking and then to the Regional Office for funding.
- After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).
- Project installation begins.
- When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement.

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Cookeville Ecological Services Field Office at 931/528-6481 or visit their website at <http://www.cookeville.fws.gov>.

5.2.D. Tennessee Valley Authority (TVA). Tennessee Valley Authority's (TVA) goals for the 21st century are to generate prosperity for the Tennessee Valley by promoting economic development, supplying low-cost, reliable power, and supporting a thriving river system. TVA is committed to the sustainable development of the region and is engaged in a wide range of watershed protection activities. TVA formed 11 multidisciplinary Watershed Teams to help communities across the Tennessee Valley actively develop and implement protection and restoration activities in their local watersheds. These teams work in partnership with business, industry, government agencies, and community groups to manage, protect, and improve the quality of the Tennessee River and its tributaries. TVA also operates a comprehensive monitoring program to provide real-time information to the Watershed Teams and other entities about the conditions of these resources. The following is a summary of TVA's resource stewardship activities in the Wilson Reservoir watershed.

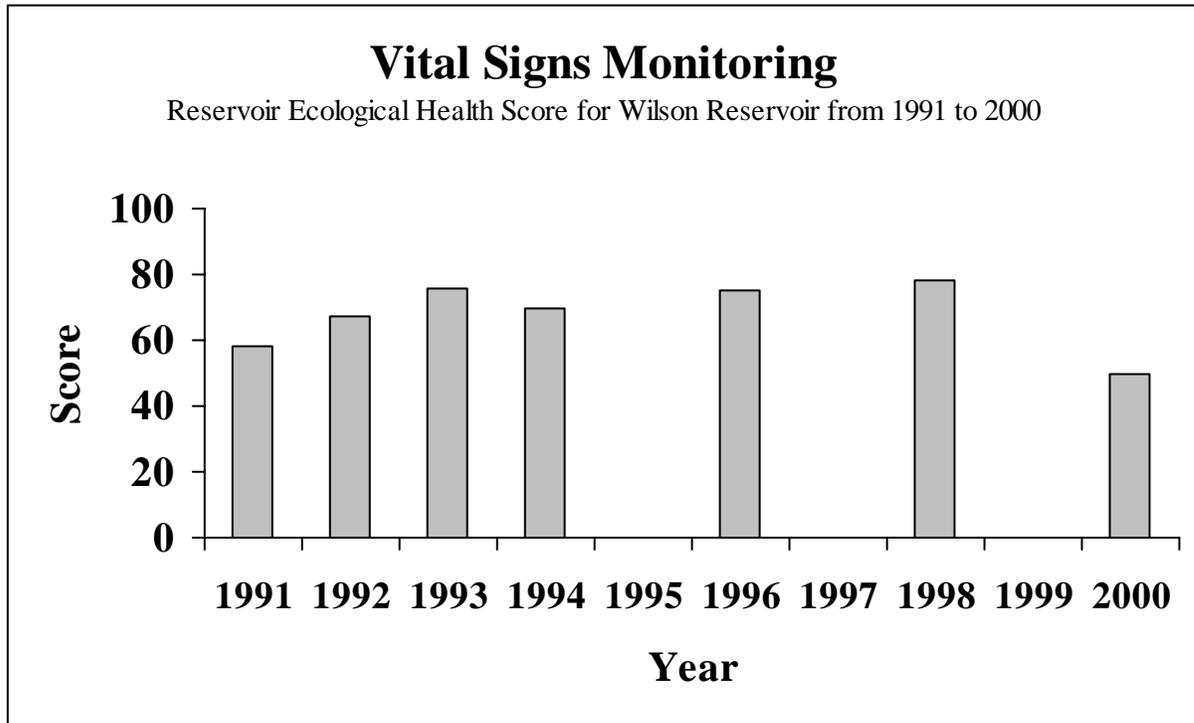
MONITORING

Vital Signs Monitoring

Reservoir Monitoring: TVA has monitored the quality of water resources of Wilson Reservoir regularly as part of its Vital Signs Monitoring effort since 1991. Physical, chemical, and biological indicators (dissolved oxygen, chlorophyll, sediment chemistry, benthos, and fish) provide information from various habitats on the ecological health of the reservoir. All sample sites in this watershed are located in Alabama. These parameters are sampled at the forebay station near Wilson Dam (TRM 260.8) and at the inflow station downstream of Wheeler Dam (TRM 273). Samples were collected annually from 1991 to 1994 and semiannually since. All sample locations are in Alabama.

Numeric ratings are given to all of the indicators sampled at each station. The lowest possible rating for any indicator is 1 (poorest condition) while the highest rating is 5 (best condition). Sediment chemistry is an exception; 0.5 is the lowest rating, 2.5 the highest. This information is used to evaluate conditions at each location as well as to develop an ecological health score for the reservoir. To obtain this score, ratings from all locations are summed and divided by total possible points for the reservoir. The result is then multiplied by 100. The lowest possible score is 20, the highest is 100.

The following chart presents Wilson Reservoir Vital Signs scores for each year for which data are comparable. Overall ecological health rating was fair in most years. Because of its overall small size and deep waters, overall ratings for Wilson Reservoir are very dependant upon weather conditions each year. Low flow rates during dry years produce very low dissolved oxygen levels in the forebay, which contributes to low benthos ratings. Low flows also contribute to higher chlorophyll levels. Typically, Wilson Reservoir typically rates fair to poor.



Bacteriological sampling: There are no bacteriological monitoring stations in this watershed located in Tennessee:

Fish Flesh Toxic Contaminants: TVA does not monitor fish flesh in this watershed within Tennessee.

Further information on Vital Signs Monitoring can be obtained by writing to Tyler Baker at: Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee, 37402 or calling him at 423-876-6733. Email address: tfbaker@tva.gov

Stream Bioassessment. Condition of water resources in Wilson watershed streams is measured using three independent methods; Index of Biotic Integrity (IBI), number of mayfly, stonefly, and caddisfly taxa (EPT), and Habitat Assessment. Not all of these tools were used at each stream sample site.

IBI: The index of biotic integrity (IBI) assesses the quality of water resources in flowing water by examining a stream's fish assemblage. Fish are useful in determining long-term (several years) effects and broad habitat conditions because they are relatively long-lived and mobile. Twelve metrics address species richness and composition, trophic structure (structure of the food chain), fish abundance, and fish health. Each metric reflects the condition of one aspect of the fish assemblage and is scored against reference streams in the region known to be of very high quality. Potential scores for each of the twelve metrics are 1-poor, 3-intermediate, or 5-the best to be expected. Scores for the 12 metrics are summed to produce the IBI for the site. The following table associates IBI ranges with attributes of fish assemblages.

Attributes	IBI Range
Comparable to the best situations without influence of man; all regionally expected species for the habitat and stream size, including the most intolerant forms, are present with full array of age and sex classes; balanced trophic structure.	58-60
Species richness somewhat below expectation, especially due to loss of most intolerant forms; some species with less than optimal abundance or size distribution; trophic structure shows some signs of stress.	48-52
Signs of additional deterioration include fewer intolerant forms, more skewed trophic structure (e.g., increasing frequency of omnivores); older age classes of top predators may be rare.	40-44
Dominated by omnivores, pollution-tolerant forms, and habitat generalists; few top carnivores; growth rates and condition factors commonly depressed; hybrids and diseased fish often present.	28-34
Few fish present, mostly introduced or tolerant forms; hybrids common; disease, parasites, fin damage, and other anomalies regular.	12-22

EPT: The number and types of aquatic insects, like fish, are indicative of the general quality of the environment in which they live. Unlike fish, aquatic insects are useful in determining short-term and localized impacts because they are short-lived and have limited mobility. The method TVA uses involves only qualitative sampling and field identification of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) to the family taxonomic level (EPT). The score for each site is simply the number of EPT families. The higher EPT scores are indicative of high quality streams because these insect larvae are intolerant of poor water quality.

Habitat Assessment: The quality and quantity of habitat (physical structure) directly affect aquatic communities. Habitat assessments are done at most stream sampling sites to help interpret IBI and EPT results. If habitat quality at a site is similar to that found at a good reference site, any impacts identified by IBI and EPT scores can reasonably be attributed to water quality problems. However, if habitat at the sample site differs considerably from that at a reference site, lower than expected IBI and EPT scores might be due to degraded habitat rather than water quality impacts.

The habitat assessment method used by TVA (modified EPA protocol) compares observed instream, channel, and bank characteristics at a sample site to those expected at a similar high-quality stream in the region. Each of the stream attributes listed below is given a score of 1 (poorest condition) to 4 (best condition). The habitat score for the sample site is simply the sum of these attributes. Scores can range from a low of 10 to a high of 40.

1. Instream cover (fish)
2. Epifaunal substrate
3. Embeddedness
4. Channel Alteration
5. Sediment Deposition
6. Frequency of Riffle
7. Channel Flow Status
8. Bank vegetation protection - Left bank and right bank, separately
9. Bank stability - Left bank and right bank, separately
10. Riparian vegetation zone width - Left bank and right bank, separately

Sample Site Selection: EPT sampling and fish community assessment (IBI) are conducted at the same sites. Site selection is governed primarily by study objectives, stream physical features, and stream access. TVA's objective is to characterize the quality of water resources within a sub-watershed (11-digit hydrologic unit). Sites are typically located in the lower end of sub-watersheds and at intervals on the mainstem to integrate the effects of land use.

TVA routinely samples 12 sites in the Tennessee portion of the Wilson watershed:

Bluewater Creek at Beartown Road
Butler Creek at TN Hwy. 227
Chisolm Creek at Old Railroad Bed Road
Crowson Creek at Old Waynesboro Road
East Fork Shoal Creek above the mouth
Factory Creek (lower) at Bromley Ford
Factory Creek (upper) at Luker Road
Holly Creek at Railroad Bed Road
Knob Creek at TN Hwy. 242
Little Shoal Creek at Davy Crockett State Park campground
Shoal Creek (lower) at Iron City Park
Shoal Creek (middle) at Hollis Hollow (SCM 38)

These sites are typically sampled every five years to keep a current picture of watershed condition. Results of the most recent surveys are summarized below.

	Year	Fish	EPT	Habitat
Bluewater Creek	2001	44-Fair/Good	8-Fair	35
Butler Creek	2002	52-Good	20-Good	34
Chisolm Creek	2000	*	*	*
Crowson Creek	2000	42-Fair	10-Good	29
East Fork Shoal Creek	2000	40-Fair	10-Good	32
Factory Creek (lower)	2000	52-Good	7-Fair	31
Factory Creek (upper)	2000	52-Good	18-Good	29
Holly Creek	2001	46-Fair/Good	12-Good	33
Knob Creek	2001	48-Good	15-Good	35
Little Shoal Creek	2000	*	*	*
Shoal Creek (lower)	2000	50-Good	14-Good	31
Shoal Creek (middle)	2000	*	*	*

*Data not available

Details about stream bioassessment sampling sites and scores can be obtained by writing Charles Saylor at Tennessee Valley Authority, PO Box 920, Ridge Way Road, Norris, TN 37828 or calling him at 865-632-1779. Email address: cfsaylor@tva.gov

WATERSHED ASSISTANCE

Coalition Support

Citizen-Based Organizations: Citizen-based watershed organizations can play a critical role in watershed protection. TVA's watershed teams work to strengthen these organizations by providing assistance in the areas of understanding the local watershed, its conditions, impacts, and threats; developing and implementing strategies to protect or improve resource quality; fundraising; river issues; and organizational development. In 1999, TVA initiated a series of workshops for watershed organizations. Past workshops have covered, state and federal water quality protection programs, grant writing, fund raising, communication/outreach, and strategic planning.

Inter-agency Partnerships: The benefits of watershed partnerships are well documented. No one unit of government, agency, group or individual has all the knowledge, expertise or resources to address all watershed issues. Partnerships can tap a diversity of energy, talent, and ideas. Watershed partnerships can also promote a more efficient use of limited financial and human resources and can identify innovative and efficient means of improving or protecting water quality. Currently, the Pickwick Watershed Team is working with Davy Crockett State Park to establish a riparian buffer demonstration along Little Shoal Creek, to increase public awareness of the importance of riparian buffers.

Outreach

National Clean Boating Campaign: The National Clean Boating Campaign is a partnership program which highlights the importance of clean water so boating will continue to be fun and safe for future generations. The program demonstrates how boaters can be good stewards of their water environment through best boating and marina practices.

Clean Marina Initiative: The Tennessee Valley Clean Marina Initiative is an effort by TVA to promote environmentally-responsible marina practices. This voluntary program, established in support of the National Clean Boating Campaign, helps marina operators protect the resource that provides them with their livelihood.

Since Wilson Reservoir is solely in Alabama, no marina efforts are being conducted in the Tennessee portion of this watershed.

Protection and restoration activities

Promote Best Management Practices: TVA provides funding and technical expertise to assist with instillation of best management practices (BMPs) that will reduce non-point pollution. TVA also works with partners to promote use of BMPs.

Shoreline stabilization: Although there is no reservoir shoreline in the Tennessee portion of the Wilson Reservoir watershed, the Pickwick Watershed Team provides technical assistance to stakeholders through individual landowner meetings and public workshops for those interested in stabilization on private stream bank areas.

Promote Riparian Buffers: An effective line of water quality protection is maintaining the vegetative plant cover along waterbodies. TVA encourages waterfront property owners to maintain or establish vegetated riparian buffers by providing information and materials to the riparian property owner. In 2002, TVA partnered with Davy Crockett State Park and Columbia State Community College to begin work on a riparian buffer demonstration area. Native riparian plant seedlings were planted along a 100 foot section of Shoal Creek and around a small mill pond within the park. Efforts to establish this demonstration site will continue in 2003. TVA has also developed a series of 11 fact sheets that will enable riparian property owners to restore, manage, and be better stewards of riparian land. The fact sheets will be available on the TVA internet site (<http://www.tva.com/river/landandshore/index.htm>) in March, 2002.

Further information on TVA's Watershed Assistance activities in the Wilson Watershed can be obtained by writing the Pickwick Watershed Team at: Tennessee Valley Authority, P.O. Box 1010, SB-1H, Muscle Shoals, AL 35662-1010 or calling them at 256/386-2228.

5.3. STATE PARTNERSHIPS.

5.3.A. TDEC Division of Water Supply. The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

- 1) Delineate the drinking water source protection area
- 2) Inventory known and potential sources of contamination within these areas
- 3) Determine the susceptibility of the water supply system to these contaminants
- 4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
- 5) Implement management measures to prevent, reduce or eliminate threats
- 6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst {limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and spring} since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions are available until 2004). The assessments are intended to enhance the protection of drinking water supplies within existing programs at the federal, state and local levels. Source water

assessments were mandated and funded by Congress. Source water protection will be left up to the individual states and local governments without additional authority from Congress for that progression.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at <http://www.state.tn.us/environment/dws> as well as other information regarding the Source Water Assessment Program and public water systems.

For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at <http://www.tdec.net/water.shtml>.

5.3.B. State Revolving Fund. TDEC administers the state's Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. TDEC has awarded loans totaling approximately \$550 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero percent to market rate, depending on the community's per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The maximum loan term is 20 years or the design life of the proposed wastewater facility, whichever is shorter.

TDEC maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project's priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority

projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

For further information about Tennessee's Clean Water SRF Loan Program, call (615) 532-0445 or visit their Web site at <http://www.tdec.net/srf>.

5.3.C. Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

- **BMP Implementation Projects.** These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.
- **Monitoring Projects.** Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the Wheeler Lake Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program, and the U.S. Environmental Protection Agency Assistance Agreements C9994674-99-0, C9994674-00-0, and C9994674-01-0.
- **Educational Projects.** The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about

practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information about the joint policy to address Bad Actors in forestry operations is available at <http://www.state.tn.us/environment/news/release/jan99/badact.htm>

5.3.D. Alabama Division of Environmental Management. Alabama has a long history of water quality partnerships in the Tennessee River Basin. The most recent development affecting the role and depth of such efforts within the Valley include the creation of the Alabama Clean Water Partnership (CWP). The CWP is a coalition of public and private individuals, companies, organizations and governing bodies working together to protect and preserve water resources and aquatic ecosystems. The CWP has a strong presence in the Wheeler Lake Hydrologic Unit through the Tennessee River Basin Clean Water Partnership Steering Committee and sub-basin committees. Like similar committees established throughout the other river basins of the State, the CWP efforts in the Wheeler Hydrologic Unit are focused on the development of new partnerships, support of existing partnerships and the funding to support water quality projects. Recent efforts by the CWP have resulted in several new watershed projects in the Wheeler Lake Hydrologic Unit that are scheduled to receive funding through Alabama's Nonpoint Source Management Program.

The CWP is currently working closely with the Alabama Department of Environmental Management to facilitate stakeholder-led, long-term water quality planning efforts and to develop watershed management plans by river basin and to develop specific restoration plans for impaired waterbodies. These planning efforts will help target waterbodies and watersheds for concentrated efforts in future years.

The majority of local partnerships and water quality projects currently active in the Tennessee River Basin occur in the Wheeler Lake Hydrologic Unit. To date, five watershed projects have developed in the Wheeler sub-basin with combinations of

financial support from Section 319 grants, Tennessee Valley Authority, Soil & Water Conservation Districts, industry, foundations and local government sources. Some of these projects date back to the initial efforts of Alabama's Nonpoint Source Management Program.

Active partnerships and watershed projects in the Wheeler Lake Hydrologic Unit include the Cotaco Creek, Flint Creek, Flint River, Paint Rock River, and Piney Creek projects. While each of these partnerships was organized around a different combination of issues and concerns, due to the long history of agriculture in the area most seek to address agricultural nonpoint source issues.

For more information concerning Clean Water Partnership activities in the Tennessee Valley of Alabama, contact Vicky Mitchell, Basin Facilitator by phone at (256) 353-6146 x2, or by E-mail: sobroke@aol.com.

For information regarding Clean Water Partnership activities elsewhere in Alabama, you may contact the ADEM website <http://www.adem.state.al.us>, the Clean Water Partnership website <http://www.cleanwaterpartnership.org> or call Allison Newell, Statewide ACWP Coordinator at 1-888-3 Got H2O.